

## **Transportation Focus Group**

### **Sampling of Current Federal Solicitations**

#### BAA07-20 DARPA Tactical Technology Office (TTO) Innovative Tactical Technologies

Agency: DARPA/TTO

Type: Sources Sought Notice

Due Date: White papers received after 1600 local time 1-15-08 will not be evaluated under this BAA. The BAA will remain open for proposals through 1600 local time on the closing date, 2-28-08.

Website: <http://www.fbo.gov/spg/ODA/DARPA/CMO/BAA07%2D20/listing.html>

The Tactical Technology Office (TTO) of the Defense Advanced Research Projects Agency (DARPA) is soliciting proposals for advanced research and development of system and subsystem level technologies that enable revolutionary improvements to the efficiency and effectiveness of the military. The DARPA/TTO program will consider a broad range of technologies but focuses on the high risk/high payoff development and demonstration of complete systems or subsystems rather than advances in basic sciences. Proposed systems and subsystems need not be composed entirely of newly developed components, and may integrate new technology into existing systems and/or subsystems:

#### **AREAS OF INTEREST:**

DARPA/TTO priorities fall within five focus areas: Advanced Platforms (Air, Sea, Space and Ground), Space Operations, Unmanned Systems, Directed Energy Systems, and Precision Strike Capabilities. The "Topics of Interest" attachment to this Announcement contains a number of representative technical concepts that are provided to give potential offerors additional guidance concerning current areas of interest to the office:

<http://fs1.fbo.gov/EPSTData/ODA/Synopses/4965/BAA07-20/BAA07-20TopicsofInterest.pdf>

#### **Representative Technical Concepts:**

- Long Endurance Aircraft
- Urban Aircraft
- Maritime Operations
- Force Protection Technologies
- Robotic Systems
- Space Operations and Situational Awareness

- Unconventional Warfare/Stabilization Operations
- Novel Aircraft Technologies

Other novel ideas that enhance military effectiveness and tilt the balance of modern warfare in favor of the US will also be considered. This BAA seeks new ideas, not necessarily extensions of the current programs. The range of programs managed by TTO has historically been broad. However, some proposals, particularly for devices, materials, and basic science, may be more appropriate to one or more of the other DARPA Offices listed at [www.darpa.mil](http://www.darpa.mil). Offerors are encouraged to look at <http://www.darpa.mil/TTO> for our current activities.

## BAA 07-46 LANdroids

Agency: Information Processing Technology Office (IPTO)/DARPA

Type: Pre-Solicitation Notice

Due Date: Final Closing – 12:00 PM (ET), June 5, 2008

Website: <http://www.fbo.gov/spg/ODA/DARPA/CMO/BAA07%2D46/listing.html>

The Defense Advanced Research Projects Agency (DARPA) Information Processing Technology Office (IPTO) is soliciting proposals for LANdroids, a new program to develop intelligent autonomous radio relay nodes that exploit movement to establish and manage mesh networks in urban settings. The goal is to create small, inexpensive, smart robotic radio relay nodes that dismounted warfighters drop as they deploy in 4 of 39 urban settings. The nodes then self-configure and form a mesh network – a temporary infrastructure that establishes communications over the region. As the situation changes, the nodes will adapt the network, such as self-healing if nodes are destroyed by the enemy. Through movement and density, the LANdroids will enable effective communications in complex non-line-of-sight (NLOS) environments like those found in urban settings – dealing with phenomena like fades and shadows through strategic self-placement and chaining of the relays.

The program will have four tasks to which bidders may propose: LANdroids Control Software, LANdroids Robot Development, and evaluation of each of these. Production cost is a driver in both the Control Software and Robot Development areas. The LANdroids control software must be lightweight – effective but suitable for processors of performance roughly comparable to what you might find in a portable device such as a typical cell phone.

The LANdroids robots, which will consist of a radio, robotic platform, battery, and small processor, will be expendable. Dismounted warfighters must be able to drop and go – benefiting from the infrastructure while it is in place but not being required to move back into harm's way to retrieve the robots.

To encourage appropriate solutions, the target award size for LANdroids software development is \$1,000,000 or less, per 12 month phase, per effort, excluding any proposed options. On the LANdroids robot side, the target is to demonstrate a platform that would have a final production cost of \$100 per LANdroid at modest volumes (e.g., one thousand units). Recall, the goal is effective communications via small, inexpensive, smart, mobile radio nodes. Multiple awards are anticipated.

## BAA07-05 BATTLEFIELD HELICOPTER EMULATOR (BHE) PROGRAM

Agency: DARPA/TTO

Type: Pre-Solicitation Notice

Due Date: initial round proposal submission is 12:00 pm (noon) EST on March 29, 2007.  
Solicitation closes January 29<sup>th</sup>, 2008.

Website: <http://www.fbo.gov/spg/ODA/DARPA/CMO/BAA07%2D05/listing.html>

DARPA's vision for the BHE program is to develop an aerial decoy capable of emulating the acoustic and infrared signatures of a wide variety of battlefield helicopters. This technology will enable the military to locate and harmlessly engage anti-helicopter mines (AHM), man-portable air defense systems (MANPADS), and provide a source of confusion during special operations. The focus of the program will be development of innovative acoustic and infrared emulation technologies that can be integrated onto a surrogate unmanned aerial vehicle (UAV) [NOTE: BHE is an emulator payload technology demonstration, not a UAV program. The Government will furnish the UAV, associated equipment, and technical support for BHE system integration and testing during the optional Phase II Period if funded.]

The "DARPA-hard" challenges associated with this program are the development of technologies that can successfully emulate the dynamic range of acoustic and infrared signatures associated with the wide range of helicopters employed by the military, which operate under varying environmental conditions. The technologies developed must be small enough to fit onto a UAV, be capable of continuous operation during the full course of UAV operation, and produce realistic acoustic and infrared signatures.

## BAA07-31 System F6

Agency: DARPA/TTO

Type: Pre-Solicitation Notice

Due Date: The proposal must be submitted in time to reach DARPA by 4:00 P.M. local time, September 7, 2007 (initial closing), in order to be considered during the initial evaluation phase; however, BAA 07-31 will remain open until June 28, 2008.

Website: <http://www.fbo.gov/spg/ODA/DARPA/CMO/BAA07%2D31/listing.html>

DARPA is soliciting innovative proposals for the performance of research, development, design, and testing to support the DARPA System F6 (Future Fast, Flexible, Fractionated, Free-Flying Spacecraft united by Information eXchange) concept. The objective of the System F6 program is to demonstrate the feasibility and benefits of a satellite architecture wherein the functionality of a traditional “monolithic” spacecraft is replaced by a cluster of wirelessly-interconnected spacecraft modules. Each such “fractionated” module can contribute a unique capability, e.g., command and data handling, guidance and navigation, payload, etc., or it replicates the capability of another module. The fractionated modules can be physically connected once in orbit or remain nearby to each other in a loose formation, or cluster. Harnessed together through a wireless network, they create a virtual satellite, delivering capability which is *at least* equivalent to the monolithic spacecraft. Concurrently, they significantly enhance flexibility and robustness, and reduce risk through the mission life and spacecraft development cycle. Proposed research should investigate innovative approaches that enable revolutionary advances in science, devices, or systems. Specifically excluded is research that primarily results in evolutionary improvements to the existing state of practice.

DARPA seeks innovative proposals in the following Areas of Interest:

Technical Area One: Fractionated Spacecraft Architectures

Technical Area Two: Distributed Network Operations

Technical Area Three: Spacecraft Wireless Communications

BAA N00421-08-R-0003 Electro-Optical (EO), Radio-Frequency (RF), and Acoustic Sensors, as well as Unmanned Aerial Vehicles (UAV's) Technologies

Agency: NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION (NAWCAD)

Type: Solicitation

Due Date: **October 3, 2008**

Website: [http://www.navair.navy.mil/doing\\_business/open\\_solicitations/solicitation\\_view\\_action.cfm?Sol\\_No=N00421-08-R-0003](http://www.navair.navy.mil/doing_business/open_solicitations/solicitation_view_action.cfm?Sol_No=N00421-08-R-0003)

Proposals are being solicited in five areas:

- Electro-Optical Sensors (EO)

- Acoustic Sensors

- Radio-Frequency (RF) Sensors

- Unmanned Aerial Vehicles (UAV's) & Airships

- Special Sensors

Other specific interests of NAVAIR relating to all of the sensors and UAV category include:

- Non-Cooperative ID Sensors and Systems, Magnetic ASW Sensors and Systems, Non-Acoustic Sensors and Systems, Acoustic Sensors and Systems, Surveillance Radar Sensors and Systems, Night Vision Systems, New Laser and Nonlinear Materials, LIDAR, Sensors and Systems, Hyperspectral Sensors and Systems, AEW radar operating at UHF through L band and S-bands, tactical radar operating at C, X, and Ku bands, synthetic aperture radar operating in Ku-, X-, C-, L-, and UHF- and lowerbands, and C3I systems operating at any radio frequency throughout the spectrum.

- Unattended ground sensors and compact autonomous vehicles, Low cost imaging optical (uv through the far infrared) for both targeting and cueing using multi-band and/or spectral classification techniques, Low cost radar for target detection imaging and/or tracking, Laser radar for target tracking and identification, and ESM for target location cueing and identification.

- Target geo-location, Auto classification utilizing target images, Acoustic and other emissions and secure means of data distribution using commercial satellites and networks, and Low cost sensor stabilization requirements and proposed solutions shall be addressed.

- Imaging/Non-Imaging, Active/Passive Sensor Technology integrated in a unique manner to allow roll-on/roll-off capability aboard cargo/transport-type multi-mission and other aircraft include:

- A modular package approach is desired for ease of integration with existing optical benches and also for ease of reconfiguration and installation. External

sensor pod approaches will also be considered if in so doing, additional advantages are gained (e.g., added spatial coverage) without compromising the required roll-on, roll-off capability. The system shall be capable of incorporating a variety of sensors to include, but not limited to: imaging optical (uv through the far infrared) for both targeting and cueing using multi-band and/or spectral classification techniques; advanced radar for target detection and tracking; laser radar for target tracking and identification; ESM for target location cueing and identification; C4I for receiving and disseminating target information and secure transmission of imagery and target track data. The proposed system shall include all aspects of multisensor/aircraft integration. Concepts for utilization of unexploited target signatures, emissions, and processing for extracting this information shall be considered. Sensor stabilization requirements and proposed solutions shall be addressed. In addition, wide bandwidth (commensurate with resolution and time) recording and storing of high resolution target imagery and video, and LADAR detector output shall be considered as part of the system solution.

